Chapter 11

Decision Making



Learning Objectives

After reading Chapter 11, you should be able to:

1. Define *decision making* and differentiate well-structured and ill-structured problems.
2. Compare and contrast perfectly rational decision making with decision making under bounded rationality.
3. Discuss the impact of framing and cognitive biases on the decision process.
4. Explain the process of escalation of commitment to an apparently failing course of action.
5. Consider how emotions and mood affect decision making.
6. Summarize the pros and cons of using groups to make decisions, with attention to the groupthink phenomenon and risk assessment.
7. Discuss techniques for improving organizational decision making.

The Loss of the Space Shuttle Columbia

On February 1, 2003, the space shuttle *Columbia* exploded during re-entry over Texas, killing all seven astronauts aboard. The most likely cause of the accident, as determined by the Columbia Accident Investigation Board, was that a piece of hardened foam, the size of a suitcase, struck the left side of the shuttle at the speed of 500 mph during take-off, causing damage that allowed heat to enter the shuttle as it tried to re-enter the Earth's atmosphere. As the hearings into the *Columbia* tragedy progressed, the focus shifted from the technical aspects of the voyage to the decision-making procedures at NASA, and many concluded that NASA had not learned the painful lessons from the space shuttle *Challenger* crash in 1986.

Top NASA officials indicated that they had noted the foam incident during the take-off, but decided that it had caused no damage that could put the shuttle at risk. As the hearings continued, however, it became clear that this view was not shared by all. A series of e-mails between NASA engineers that were made public clearly revealed that many feared the worst as a result of the foam incident, and that some viewed the assessment that "all was fine" as very premature. Some of the e-mails proved eerily clairvoyant as they predicted almost the exact sequence of events during the eventual tragedy. When pressed by the investigation board, top NASA officials admitted that no managers involved with the failed mission had been aware of these e-mails, and suggested that they represented typical "what-if" speculation, and healthy debate, among mid-level employees.



The *Columbia* space shuttle tragedy revealed flawed decision making.

Others suggested that the failure to recognize danger was a systematic problem at NASA. Professor Diane Vaughn, a witness at the *Columbia* hearings whose scholarly review of the 1986 *Challenger* crash pointed to a culture of denial at NASA, suggested that, for all of NASA's talk about free thinking and healthy debate, decisions at the space agency are very data- and procedure-driven. While the engineers who predicted the eventual crash in their e-mails used a common-sense approach of what would happen when a hard projectile hits a craft at very high speed, they had no solid data to support their views. As such, their fears were not communicated to the proper individuals. According to Professor Vaughan, "One of the characteristics in shifting from *Apollo* culture to shuttle-era culture is that 'intuition and hunch' do not carry any weight. They do in everyday decision making. But when it comes to formal decisions, hard data-numbers are required."

Other witnesses pointed to NASA's faulty assessment of risk, and the lack of follow-up on reported problems. It was revealed during the hearings that falling foam was a common occurrence during shuttle take-offs, and that foam had struck the space shuttle *Atlantis* on a previous mission in the fall of 2002. Unlike *Columbia*, however, *Atlantis* had completed its mission without incident. Investigation witness Robert Thompson, who ran the shuttle program until 1981, said he could not imagine allowing the shuttle to fly knowing that a hunk of foam could strike the wing at nearly 500 mph (800 kph), and could not understand how this risk was downplayed. Thomson likened NASA's attitude about falling debris to that of a person who narrowly escapes several gunshots and then assumes future gunshots pose no danger. Several other witnesses alluded to an organizational culture where managers were lulled into a false sense of security when problems did not lead to tragedy. It was also revealed that NASA did not have a proper safety database of reported problems, and that the analytical tools used to conclude that the foam had caused no damage were technologically crude.

Finally, it was suggested that decisions in Washington to cut funding had a trickle-down effect by which NASA's workforce decreased in both size and expertise, and the agency came to rely more and more on contractors from private industry, especially for the shuttle program. The most recent privatization effort was creating a single major contractor for shuttle business, the United Space Alliance, owned equally by Boeing and Lockheed Martin. During the *Columbia* investigation, it was revealed that Boeing had performed the analysis of the foam debris that led NASA administrators to conclude that there were no safety concerns. As the foam came from the external tank built by Lockheed Martin, the investigation board noted that a potential conflict of interest existed concerning the decision-making processes for safety assessment. NASA's problems with contractors was nothing new, as witnessed by the technical flaws of NASA's Hubble Telescope in the 1990s, which required $600 million in repairs. It was also noted that NASA transferred control of the shuttle program from the Johnson Space Centre in Houston to the NASA deputy associate administrator for space flights in Washington in 2002, which moved decisions away from the people who had real responsibility and technical expertise.

The final report from *Columbia* investigators was released in August 2003, and many are still speculating on the future of the shuttle program and of manned spaceflights in general. Some have suggested that, for all its purported scientific benefits and uses, the shuttle program has yielded very few benefits, and that the space program is an extravagance that can no longer be afforded. Still, there may be pressure on NASA to resume shuttle missions as soon as possible due to the still-to-be-completed International Space Station. If the shuttle is sidelined for an extended period of time, the already-controversial station, which has been under construction for four years, may have to be mothballed. As such, as the investigations and second-guessing continue, NASA and its sponsors will be facing more tough decisions in the very near future.[1]

How could so many smart people misjudge such risks and make a series of such bad decisions? We will find out in this chapter. First, we will define decision making and present a model of a rational decision-making process. As we work through this model, we shall be especially concerned with the practical limitations of rationality. After this, we will investigate the use of groups to make decisions. Finally, the chapter closes with a description of some techniques to improve decision making.

What Is Decision Making?

Consider the following questions that might arise in a variety of organizational settings:

- How much inventory should our store carry?
- Where should we locate the proposed community mental health centre?
- Should I remain at this job or accept another?

- How many classes of Philosophy 200 should our department offer next semester?
- Should our diplomats attend the summit conference?

Decision making. The process of developing a commitment to some course of action.

Common sense tells us that someone is going to have to do some decision making to answer such questions. **Decision making** is the process of developing a commitment to some course of action.[2] Three things are noteworthy about this definition. First, decision making involves making a *choice* among several action alternatives—the store can carry more or less inventory, and the mental health centre can be located at the north or south end of town. Second, decision making is a *process* that involves more than simply the final choice among alternatives—if you decide to accept the offer of a new job, we want to know *how* this decision was reached. Finally, the "commitment" mentioned in the definition usually involves some commitment of *resources,* such as time, money, or personnel—if the store carries a large inventory, it will tie up cash; if the chairperson of Philosophy offers too many introductory classes, he might have no one available to teach a graduate seminar. NASA shuttle launches require a substantial resource commitment.

Problem. A perceived gap between an existing state and a desired state.

In addition to conceiving of decision making as the commitment of resources, we can also describe it as a process of problem solving.[3] A **problem** exists when a gap is perceived between some existing state and some desired state. For example, the chairperson of the Philosophy department might observe that there is a projected increase in university enrolment for the upcoming year, and that his course schedule is not completed (existing state). In addition, he might wish to adequately service the new students with Philosophy 200 classes and at the same time satisfy his Dean with a timely, sensible schedule (desired state). In this case, the decision-making process involves the perception of the existing state, the conception of the desired state, and the steps that the chairperson takes to move from one state to the other.

Well-Structured Problems

Well-structured problem. A problem for which the existing state is clear, the desired state is clear, and how to get from one state to another is fairly obvious.

For a **well-structured problem**, the existing state is clear, the desired state is clear, and how to get from one state to the other is fairly obvious. Intuitively, these problems are simple, and their solutions arouse little controversy. This is because such problems are repetitive and familiar.

- Assistant bank manager—which of these 10 car loan applications should I approve?
- Welfare officer—how much assistance should this client receive?
- Truck driver—how much weight should I carry?

Program. A standardized way of solving a problem.

Because decision making takes time and is prone to error, organizations (and individuals) attempt to program the decision making for well-structured problems. A **program** is simply a standardized way of solving a problem. As such, programs short-circuit the decision-making process by enabling the decision maker to go directly from problem identification to solution.

Programs usually go under labels such as *rules, routines, standard operating procedures,* or *rules of thumb*. Sometimes, they come from experience and exist only "in the head." Other programs are more formal. You are probably aware that routine loan applications are "scored" by banks according to a fixed formula that takes into account income, debt, previous credit, and so on. Some programs exist in the form of straightforward rules—"Truck drivers will always carry between 85 and 95 percent of legal weight."

Many of the problems encountered in organizations are well structured, and programmed decision making provides a useful means of solving these problems. However, programs are only as good as the decision-making process that led to the adoption of the program in the first place. In computer terminology, "garbage in"

will result in "garbage out." Another difficulty with decision programs is their tendency to persist even when problem conditions change.

These difficulties of programmed decision making are seen in the ineffective hiring procedures that some firms use. To solve the recurrent problem of choosing employees for lower-level jobs, almost all companies use application forms. These forms are part of a decision program. However, some firms have persisted in asking for information (such as age or marital status) that violates equal employment and human rights legislation or is not job related. Costly lawsuits have resulted. Furthermore, there is seldom evidence that this information is a valid predictor of job performance (garbage in—garbage out).

Ill-Structured Problems

The extreme example of an **ill-structured problem** is one in which the existing and desired states are unclear, and the method of getting to the desired state (even if clarified) is unknown. For example, a vice-president of marketing might have a vague feeling that the sales of a particular product are too low. However, she might lack precise information about the product's market share (existing state) and the market share of its most successful competitor (ideal state). In addition, she might be unaware of exactly how to increase the sales of this particular product.

Ill-structured problem. A problem for which the existing and desired states are unclear, and the method of getting to the desired state is unknown.

Ill-structured problems are generally unique, that is, they are unusual and have not been encountered before. In addition, they tend to be complex and involve a high degree of uncertainty. As a result, they frequently arouse controversy and conflict among the people who are interested in the decision. For example, consider the following:

- Should we vaccinate the population against a new flu strain when the vaccination might have some bad side effects?
- Should we implement a risky attempt to rescue political hostages?
- In which part of the country should we build a new plant?

It should be obvious that ill-structured problems such as these cannot be solved with programmed decisions. Rather, the decision makers must resort to nonprogrammed decision making. This simply means that they are likely to try to gather more information and be more self-consciously analytical in their approach. Ill-structured problems can entail high risk and stimulate strong political considerations. We will concentrate on them in this chapter.

Now that you are familiar with different kinds of problems, consider the You Be the Manager feature.

The Compleat Decision Maker—A Rational Decision-Making Model

Exhibit 11.1 presents a model of the decision process that a rational decision maker might use. When a problem is identified, a search for information is begun. This information clarifies the nature of the problem and suggests alternative solutions. These are carefully evaluated, and the best is chosen for implementation. The implemented solution is then monitored over time to ensure its immediate and continued effectiveness. If difficulties occur at any point in the process, repetition or recycling may be effected.

It might occur to you that we have not yet determined exactly what a "rational" decision maker is. Before we discuss the specific steps of the model in detail, let us contrast two forms of rationality.

You Be the Manager

Turning Decision Making into a Science at General Electric Mortgage Insurance



GE tackles 8,000 delinquent loans a year.

If you stop making your mortgage payments because of job loss, divorce, illness, etc., chances are you will get a call from someone at General Electric Mortgage Insurance. As one of the largest companies insuring in the event that people stop paying their mortgage, GE tackles 8,000 delinquent loans a year.

Employees deal daily with hardship. But it is a business, and profitability relies heavily on the quick decisions of 25 representatives who determine if you are in so deep that the house must be sold or foreclosure initiated, or if, with a little patience, the loan can be "cured," meaning, you get back on your feet and become your old reliable self.

GE has long been frustrated that a handful of representatives have been much better at making such decisions. Each top performer seemed to arrive at decisions differently, yet all had a knack for knowing which loans could be cured.

Such success had always been attributed to experience and gut instinct, an art that could not easily be taught to others. But GE decided it could save millions of dollars if it turned "art into science," says Buz Mertes, vice-president of loss mitigation and customer service.

It took a chance, pulling its most successful representatives off the job for 10 months and putting them in a room where they argued heatedly about what made their decisions superior. The idea was to find ways to accurately predict which home buyers delinquent on their mortgage payments would likely recover and which should sell their houses as soon as possible and to transfer this knowledge to other representatives.

But would it work? Can all the representatives be trained to make decisions like the most successful representatives do? You be the manager.

Questions

1. Is it possible to program or standardize the decision making process at GE? Can people be trained to make better decisions?
2. What do you think was the outcome of GE's attempt to find out how successful representatives make decisions?

To find what happened at GE, check The Manager's Notebook at the end of the chapter.

Source: Excerpted from Jones, D. (1998, May 1). GE turns decision-making "art into science." *USA Today*, p. 5B.

Perfect versus Bounded Rationality

Perfect rationality. A decision strategy that is completely informed, perfectly logical, and oriented toward economic gain.

The prototype for **perfect rationality** is the familiar Economic Person (formerly Economic Man), whom we meet in the first chapter of most introductory textbooks in economics. Economic Person is the perfect, cool, calculating decision maker. More specifically, he or she

- can gather information about problems and solutions without cost and is thus completely informed;
- is perfectly logical—if solution A is preferred over solution B, and B is preferred over C, then A is necessarily preferable to C; and
- has only one criterion for decision making—economic gain.

While Economic Person is useful for theoretical purposes, the perfectly rational characteristics embodied in Economic Person do not exist in real decision makers. Nobel Prize winner Herbert Simon recognized this and suggested that managers use

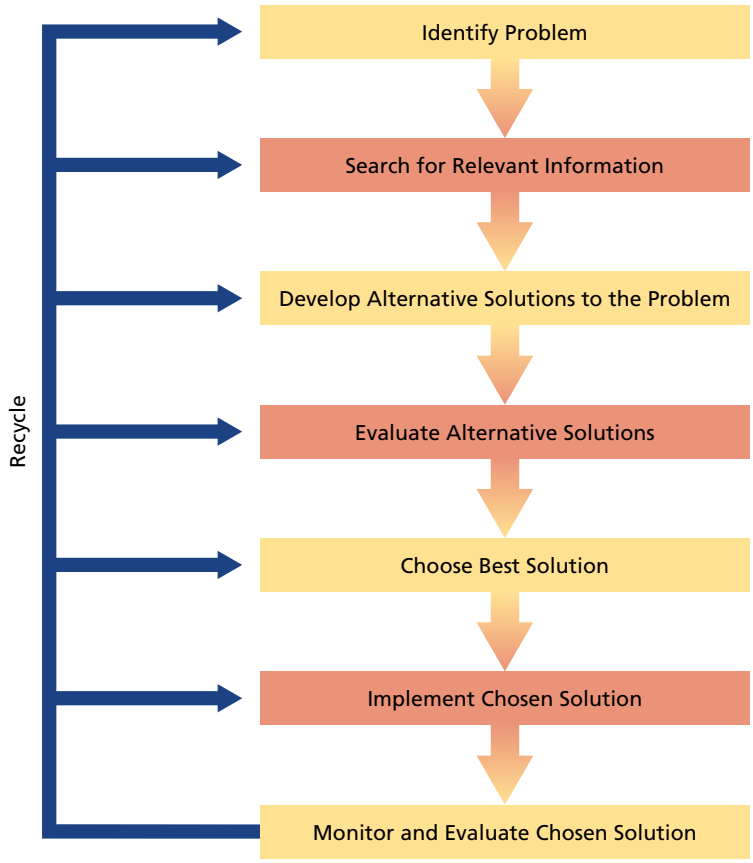


Exhibit 11.1
The rational decision-making process.

bounded rationality rather than perfect rationality.[4] That is, while they try to act rationally, they are limited in their capacity to acquire and process information. In addition, time constraints and political considerations (such as the need to please others in the organization) act as bounds to rationality.

Bounded rationality. A decision strategy that relies on limited information and that reflects time constraints and political considerations.

Framing and cognitive biases both illustrate the operation of bounded rationality, as does the impact of emotions and mood on decisions. **Framing** refers to the (sometimes subtle) aspects of the presentation of information about a problem that are assumed by decision makers.[5] A frame could include assumptions about the boundaries of a problem, the possible outcomes of a decision, or the reference points used to decide if a decision is successful.[6] As we shall see, how problems and decision alternatives are framed can have a powerful impact on resulting decisions.

Framing. Aspects of the presentation of information about a problem that are assumed by decision makers.

Cognitive biases are tendencies to acquire and process information in a particular way that is prone to error. These biases constitute assumptions and shortcuts that can improve decision-making efficiency, but they frequently lead to serious errors in judgment. We will see how they work in the following pages.

Cognitive biases. Tendencies to acquire and process information in an error-prone way.

After we work through the rational decision-making model, we will consider how emotions and mood affect decisions.

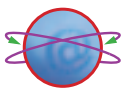
Problem Identification and Framing

You will recall that a problem exists when a gap occurs between existing and desired conditions. Such gaps might be signaled by dissatisfied customers or vigilant employees. Similarly, the press might contain articles about legislation or ads for competing products that signal difficulties for the organization. The perfectly rational decision maker, infinitely sensitive and completely informed, should be a



great problem identifier. Bounded rationality, however, can lead to the following difficulties in problem identification:[7]

- *Perceptual defence.* In Chapter 3, we pointed out that the perceptual system may act to defend the perceiver against unpleasant perceptions. For example, the downplaying of recurring problems during shuttle launches and their treatment as maintenance issues by NASA managers could be due to the stress involved in considering more unpleasant scenarios. For more on how inaccurate perceptions affect decision making see "OB Flashback: *How Can Managers Make Good Decisions Despite Inaccurate Perceptions?*"
- *Problem defined in terms of functional specialty.* Selective perception can cause decision makers to view a problem as being in the domain of their own specialty (e.g., marketing) even when some other perspective might be warranted.
- *Problem defined in terms of solution.* This form of jumping to conclusions effectively short-circuits the rational decision-making process. When Coca-Cola changed its time-honoured formula to produce a "new" Coke, it appears that its market share problem was prematurely defined in terms of a particular solution—we need to change our existing product. More recently, BMW's attempt to enhance the technology quotient of its higher-end sedans led to the adoption of the electronic iDrive interface. Many auto writers found the system cumbersome and wondered whether this was the way to showcase technology.
- *Problem diagnosed in terms of symptoms.* "What we have here is a morale problem." While this might be true, a concentration on surface symptoms will provide the decision maker with few clues about an adequate solution. The real problem here involves the cause of the morale problem. Low morale due to poor pay suggests different solutions than does low morale due to boring work.



Coca-Cola
www.coca-cola.com

BMW
www.bmw.com

When a problem is identified, it is necessarily framed in some way. Consider how different it is to frame a $10,000 expenditure as a cost (something to be avoided) versus an investment (something to be pursued). Or, consider how different it is to

frame a new product introduction as a military campaign against competitors versus a crusade to help customers. Or, consider how a firm might view a new piece of technology as a threat to its business or an opportunity to be exploited. In each case, the facts of the matter might be the same, but the different decision frames might lead to very different decisions.

Rational decision makers should try to be very self-conscious about how they have framed problems ("We have assumed that this is a product innovation problem."). Also, they should try out alternative frames ("Let's imagine that we don't need a new product here."). Finally, decision makers should avoid overarching, universal frames (corporate culture gone wild). While it is a good idea to "put customers first," we do not want to frame every problem as a customer service problem.[8]

Information Search

As you can see in Exhibit 11.1, once a problem is identified, a search for information is instigated. This information search may clarify the nature or extent of the problem and begin to suggest alternative solutions. Again, our perfectly rational Economic Person is in good shape at this second stage of the decision-making process. He or she has free and instantaneous access to all information necessary to clarify the problem and develop alternative solutions. Bounded rationality, however, presents a different picture. Information search might be slow and costly.

Too Little Information. Sometimes, decision makers do not acquire enough information to make a good decision. Several cognitive biases contribute to this. For one thing, people tend to be mentally lazy and use whatever information is most readily available to them. Often, this resides in the memory, and we tend to remember *vivid, recent* events.[9] Although such events might prove irrelevant in the context of the current problem, we curtail information search and rely on familiar experience. The manager who remembers that "the last time we went to an outside supplier for parts, we got burned" may be ignoring the wisdom of contracting out a current order.

Another cognitive bias that contributes to incomplete information search is the well-documented tendency for people to be overconfident in their decision making.[10] This difficulty is exacerbated by **confirmation bias**, the tendency to seek out only information that conforms to one's own definition of or solution to a problem. Both these biases can lead people to shirk the acquisition of additional information. Indeed, critics of the U.S. invasion of Iraq cited both overconfidence and confirmation bias. Similarly, in the fatal 1986 *Challenger* space launch, only a limited range of data about the impact of temperature on mechanical failure was examined.

Confirmation bias. The tendency to seek out information that conforms to one's own definition of or solution to a problem.

Too Much Information. While the bounds of rationality often force us to make decisions with incomplete or imperfect information, *too much* information can also damage the quality of decisions. **Information overload** is the reception of more information than is necessary to make effective decisions. As shown in Exhibit 11.2, advances in technology have made information overload an even greater problem as people now receive more messages and information than ever. According to one study, the average person sends and receives approximately 178 messages a day.[11]

Information overload. The reception of more information than is necessary to make effective decisions.

As you might guess, information overload can lead to errors, omissions, delays, and cutting corners.[12] In addition, decision makers facing overload often attempt to use all the information at hand, then get confused and permit low-quality information or irrelevant information to influence their decisions.[13] Perhaps you have experienced this when writing a term paper—trying to incorporate too many references and too many viewpoints into a short paper can lead to a confusing, low-quality end product. More is not necessarily better.



Information overload can lead to errors, omissions, delays, and stress.

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Exhibit 11.2
Average number of messages received daily per employee.

*Noncellular Source: From Institute for the Future/Gallup Organization, cited in: Markels, A. (1997, April 8). Memo 4.8.97, FYI: Messages inundate offices. *Wall Street Journal*, p. B1. Reprinted with permission.

However, decision makers seem to *think* that more is better. In one study, even though information overload resulted in lower-quality decisions, overloaded decision makers were more *satisfied* than those who did not experience overload.[14] Why is this so? For one thing, even if decisions do not improve with additional information, confidence in the decisions may increase ("I did the best I could"). Second, decision makers may fear being "kept in the dark" and associate the possession of information with power. One research review draws several conclusions about information gathering and use.[15] It shows that managers

- gather much information that has little decision relevance;
- use information that they collected and gathered after a decision in order to justify that decision;
- request information that they do not use;
- request more information, regardless of what is already available; and
- complain that there is not enough information to make a decision even though they ignore available information.

In conclusion, although good information improves decisions, organizational members often obtain more or less information than is necessary for adequate decisions.

Alternative Development, Evaluation, and Choice

Maximization. The choice of the decision alternative with the greatest expected value.

Perfectly informed or not, the decision maker can now list alternative solutions to the problem, examine the solutions, and choose the best one. For the perfectly rational, totally informed, ideal decision maker, this is easy. He or she conceives of all alternatives, knows the ultimate value of each alternative, and knows the probability that each alternative will work. In this case, the decision maker can exhibit **maximization**—that is, he or she can choose the alternative with the greatest expected value. Consider a simple example:

	Ultimate Value	Probability	Expected Value
Alternative 1	$100,000 Profit	.4	$40,000 Profit
Alternative 2	$ 60,000 Profit	.8	$48,000 Profit

Here, the expected value of each alternative is calculated by multiplying its ultimate value by its probability. In this case, the perfectly rational decision maker would choose to implement the second alternative.

Unfortunately, things do not go so smoothly for the decision maker working under bounded rationality. He may not know all alternative solutions, and he might be ignorant of the ultimate values and probabilities of success of those solutions that he knows.

Again, cognitive biases come into play. In particular, people are especially weak intuitive statisticians, and they frequently violate standard statistical principles. For example:[16]

- People avoid incorporating known existing data about the likelihood of events ("base rates") into their decisions. For instance, firms continue to launch novelty food products (e.g., foods squeezed from tubes or foods developed by celebrities) even though they have a very high failure rate in the market.
- Large samples warrant more confidence than small samples. Despite this, data from a couple of (vivid) focus groups might be given more weight than data from a large (but anonymous) national survey.
- Decision makers often overestimate the odds of complex chains of events occurring—the scenario sounds sensible despite being less likely with every added link in the chain. "This product will be successful because the price of oil will fall *and* our competitors won't master the technology *and* free trade laws will be enacted."
- People are poor at revising estimates of probabilities and values as they acquire additional information. A good example is the **anchoring effect**, which illustrates that decision makers do not adjust their estimates enough from some initial estimate that serves as an anchor. For example, in one study, real estate agents allowed the *asking price* of a house to unduly influence their *professional evaluation* of the house.[17]

Anchoring effect. The inadequate adjustment of subsequent estimates from an initial estimate that serves as an anchor.

It is possible to reduce some of these basic cognitive biases by making people more accountable for their decisions. This might include requiring reasoned reports, formal presentations of how the decision was reached, and so on. However, it is critical that this accountability be in place *before* a decision is reached. After-the-fact accountability often increases the probability of biases, as people try to protect their identity as good decision makers.[18]

The perfectly rational decision maker can evaluate alternative solutions against a single criterion—economic gain. The decision maker who is bounded by reality might have to factor in other criteria as well, such as the political acceptability of the solution to other organizational members—will the boss like it? Since these additional criteria have their own values and probabilities, the decision-making task increases in complexity.

The bottom line here is that the decision maker working under bounded rationality frequently "satisfices" rather than maximizes.[19] **Satisficing** means that the decision maker establishes an adequate level of acceptability for a solution and then screens solutions until he or she finds one that exceeds this level. When this occurs, evaluation of alternatives ceases, and the solution is chosen for implementation. For instance, the human resources manager who feels that absenteeism has become too high might choose a somewhat arbitrary acceptable level (e.g., the rate one year earlier), then accept the first solution that seems likely to achieve this level. Few organizations seek to *maximize* attendance.

Satisficing. Establishing an adequate level of acceptability for a solution to a problem and then screening solutions until one that exceeds this level is found.

Risky Business

Choosing between decision alternatives often involves an element of risk, and the research evidence on how people handle such risks is fascinating. Consider this scenario that decision researcher Max Bazerman developed. Which alternative solution would you choose?

> Robert Davis, head of the legal staff of a Fortune 500 company, has delayed making one of the most critical recommendations in the organization's history. The company is faced with a class action suit from a hostile group of consumers. While the organization believes that it is innocent, it realizes that a court may not have the same perspective. The organization is expected to lose $50 million if the suit is lost in court. Davis predicts a 50 percent chance of losing the case. The organization has the option of settling out of court by paying $25 million to the "injured" parties. Davis's senior staff has been collecting information and organizing the case for over six months. It is time for action. What should Davis recommend?

Alternative A Settle out of court and accept a sure *loss* of $25,000,000,

or

Alternative B Go to court expecting a 50 percent probability of a $50,000,000 loss.[20]

Notice that these two solutions are functionally equivalent in terms of dollars and cents (50 percent of $50 million = $25 million). Nonetheless, you probably tended to choose alternative B—about 80 percent of students do. Notice also that alternative B is the riskier of the two alternatives, in that it exposes the firm to a *potential* for greater loss.

Now, consider two further descriptions of the alternatives. Which solution would you choose?

Alternative C Settle out of court and *save* $25,000,000 that could be lost in court,

or

Alternative D Go to court expecting a 50 percent probability of *saving* $50,000,000.

Again, these two solutions are functionally equivalent in monetary terms (and equivalent to options A and B). Yet, you probably chose solution C—80 percent of students do. Notice that this is the *less* risky alternative, in that the firm is not exposed to a potential $50 million loss.

This is a graphic example of the power of framing. Alternatives A and B frame the problem as a choice between losses, while C and D frame it as a choice between gains or savings. Research by Daniel Kahneman and Amos Tversky shows that when people view a problem as a choice between losses, they tend to make risky decisions, rolling the dice in the face of a sure loss. When people frame the alternatives as a choice between gains they tend to make conservative decisions, protecting the sure win.[21]

It is very important to be aware of what reference point you are using when you frame decision alternatives. It is not necessarily wrong to frame a problem as a choice between losses, but this can contribute to a foolish level of risk taking. In the *Columbia* example, experts testified that, had the foam incident been deemed a serious problem, NASA would have been faced with a costly, risky, and perhaps impossible rescue attempt. As such, had the shuttle been deemed at serious risk, decision makers would have been faced with two very negative alternatives: Risk the loss of the shuttle, or attempt a costly, dangerous, and very uncertain rescue attempt. The difficult alternatives could have influenced decision makers to go with experience and assume that the foam caused no serious damage.

We should emphasize that learning history can modify these general preferences for or against risk.[22] For example, suppose that a firm has become very successful by virtue of a series of risky decisions and is now faced with sitting on a handsome market share or investing in a product that could boost its share even higher. This win-win scenario would normally provoke conservatism, but the firm's historical success may tempt managers to choose the risky course of action and invest in the new product. Choosing a risky course of action might also be a function of one's culture (see "Global Focus: *Cultural Differences in Risky Decision Making*").

Solution Implementation

When a decision is made to choose a particular solution to a problem, the solution must be implemented. The perfectly rational decision maker will have factored any possible implementation problems into his or her choice of solutions. Of course, the bounded decision maker will attempt to do the same when estimating probabilities of success. However, in organizations, decision makers are often dependent on others to implement their decisions, and it might be difficult to anticipate their ability or motivation to do so.

A good example of implementation problems occurs when products such as cars are designed, engineered, and produced in a lengthy series of stages. For example, engineering might have to implement decisions made by designers, and production planning might have to implement decisions made by engineering. As we noted in Chapter 7, this sequential process frequently leads to confusion, conflict, and delay,



Cultural Differences in Risky Decision Making

When making a decision, who would be greater risk takers—the Americans or the Chinese? If you think it would be people in the United States, then like most people who answered this question in a recent survey, you are wrong. In fact, research on cultural differences in decision making has found just the opposite. In a study by Elke Weber and Christopher Hsee, the Chinese were willing to invest in financial deals that the Americans found too risky.

In order to try to understand these cultural differences, Weber and Hsee conducted a study in which they asked people in the United States, China, Germany, and Poland not only how willing they would be to invest in a set of financial options but also how risky they perceived the options to be. As was the case in the previous study, the Chinese were willing to invest the most money. In addition, they also perceived the lowest amount of risk. The Americans were willing to invest the least amount and perceived the greatest amount of risk. People from Germany and Poland fell somewhere in between. These results suggest that one of the reasons that people from China take greater risks is that they perceive the same risks as smaller than do people from the United States and the other countries. Controlling for cultural differences in perceiving risk, the researchers found that the Chinese and the Americans were willing to tolerate the same amount of risk; however, the Chinese still considered the financial options to be less risky than did the Americans.

On the basis of these findings, Weber and her colleagues proposed what they call the "cushion hypothesis." They argue that people in collectivist cultures, such as in China, can take greater financial risks because their social networks protect (or "cushion") them from large financial losses. Thus, the Chinese see the risks as lower because they feel they are protected.

The Chinese are also more confident in their judgments than are the Americans. Frank Yates found that people in many Asian countries are more overconfident than people in the United States. However, people in Japan were found to be more similar to people in the United States than to those in other Asian countries. Yates believes that people in countries such as China think about problems differently from people in the United States and Japan. These findings have important practical implications for people who work on international teams and with people from different cultures.

Source: Based on Azar, B. (1999, May). How do different cultures weigh the same decision? *APA Monitor*, p.12.

unless cross-functional teams are used during the decision-making process. When they work well, such teams are sensitive to implementation problems.

Solution Evaluation

When the time comes to evaluate the implemented solution, the decision maker is effectively examining the possibility that a new problem has occurred: Does the (new) existing state match the desired state? Has the decision been effective? For all the reasons we stated previously, the perfectly rational decision maker should be able to evaluate the effectiveness of the decision with calm, objective detachment. Again, however, the bounded decision maker might encounter problems at this stage of the process.

Justification. As we said earlier, people tend to be overconfident about the adequacy of their decisions. Thus, substantial dissonance can be aroused when a decision turns out to be faulty. One way to prevent such dissonance is to avoid careful tests of the adequacy of the decision. As a result, many organizations are notoriously lax when it comes to evaluating the effectiveness of expensive training programs or advertising campaigns. If the bad news cannot be avoided, the erring decision maker might devote his or her energy to trying to justify the faulty decision.

Sunk costs. Permanent losses of resources incurred as the result of a decision.

Escalation of commitment. The tendency to invest additional resources in an apparently failing course of action.

The justification of faulty decisions is best seen in the irrational treatment of sunk costs. **Sunk costs** are permanent losses of resources incurred as the result of a decision.[23] The key word here is "permanent." Since these resources have been lost (sunk) due to a past decision, they should not enter into future decisions. Despite this, psychologist Barry Staw has studied how people often "throw good resources after bad," acting as if they can recoup sunk costs. This process is **escalation of commitment** to an apparently failing course of action, in which the escalation involves devoting more and more resources to actions implied by the decision.[24] For example, suppose an executive authorizes the purchase of several new machines to improve plant productivity. The machines turn out to be very unreliable, and they are frequently out of commission for repairs. Perfect rationality suggests admitting to a mistake here. However, the executive might authorize an order for more machines from the same manufacturer to "prove" that he was right all along, hoping to recoup sunk costs with improved productivity from an even greater number of machines.

Dissonance reduction is not the only reason that escalation of commitment to a faulty decision may occur. In addition, a social norm that favours *consistent* behaviour by managers might be at work.[25] Changing one's mind and reversing previous decisions might be perceived as a sign of weakness, a fate to be avoided at all costs.

Escalation of commitment sometimes happens even when the current decision maker is not responsible for previous sunk costs. For example, politicians might continue an expensive unnecessary public works project that was begun by a previous political administration. Here, dissonance reduction and the appearance of consistency are irrelevant, suggesting some other causes of escalation. For one thing, decision makers might be motivated not to appear wasteful.[26] ("Even though the airport construction is way over budget and flight traffic doesn't justify a new airport, let's finish the thing. Otherwise, the taxpayers will think we've squandered their money.") Also, escalation of commitment might be due to the way in which decision makers frame the problem once some resources have been sunk. Rather than seeing the savings involved in reversing the decision, the problem might be framed as a decision between a sure loss of x dollars (which have been sunk) and an uncertain loss of $x + y$ dollars (maybe the additional investment will succeed). As we noted earlier, when problems are framed this way, people tend to avoid the certain loss and go with the riskier choice, which in this case is escalation.[27]

Escalation can occur in both competitive and noncompetitive situations. Some Wall Street analysts felt that Viacom Inc. paid too much for entertainment giant

Paramount in its five-month bidding war with QVC Network. Escalation is frequently seen in competitive bidding. As a noncompetitive example, many Wall Street securities analysts overstated the prospects for stocks preceding the most recent market crash.

Are there any ways to prevent the tendency to escalate commitment to a failing course of action? Logic and research suggest the following:[28]

- Encourage continuous experimentation with reframing the problem to avoid the decision trap of feeling that more resources *have* to be invested. Shift the frame to saving rather than spending.
- Set specific goals for the project in advance that must be met if more resources are to be invested. This prevents escalation when early results are "unclear."
- Place more emphasis in evaluating managers on *how* they made decisions and less on decision outcomes. This kind of accountability is the sensible way to teach managers not to fear failure.
- Separate initial and subsequent decision making so that individuals who make the initial decision to embark on a course of action are assisted or replaced by others who decide if a course of action should be continued. Banks often do this when trying to decide what to do about problem loans.

It may be tempting to think that using groups to make decisions will reduce the tendency toward escalation. However, research shows that groups are *more* prone than individuals to escalate commitment.[29] Certainly, many of the prominent escalation fiascos have been group decisions.

Hindsight. The careful evaluation of decisions is also inhibited by faulty hindsight. **Hindsight** refers to the tendency to review the decision-making process that we used in order to find out what we did right (in the case of success) or wrong (in the case of failure). While hindsight can prove useful, it often functions as a cognitive bias.

Hindsight. The tendency to review the decision-making process to find what was done right or wrong.

The classic example of hindsight involves the armchair quarterback who "knew" that a chancy intercepted pass in the first quarter was unnecessary because the team won the game anyway! The armchair critic is exhibiting the knew-it-all-along effect. This is the tendency to assume after the fact that we knew all along what the outcome of a decision would be. In effect, our faulty memory adjusts the probabilities that we estimated before making the decision to correspond to what actually happened.[30] This can prove quite dangerous. The money manager who consciously makes a very risky investment that turns out to be successful might revise her memory to assume that the decision was a sure thing. The next time, the now-confident investor might not be so lucky!

Another form of faulty hindsight is the tendency to take personal responsibility for successful decision outcomes while denying responsibility for unsuccessful outcomes.[31] Thus, when things work out well, it is because *we* made a careful, logical decision. When things go poorly, some unexpected *external* factor messed up our sensible decision!

How Emotion and Mood Affect Decision Making

Thus far, we have discussed decision making from a mainly cognitive perspective, focusing on the rational decision-making model and illustrating the limits to rationality. However, our coverage of decision justification and hindsight suggests a considerable emotional component to many organizational decisions—people don't like to be wrong, and they often become emotionally attached to the failing course of action that signals escalation of commitment.

At the outset, it should be emphasized that emotionless decision making would be poor decision making, and the rational model is not meant to suggest otherwise.

Some of the most graphic evidence for this comes from unfortunate cases in which people suffer brain injuries that blunt their emotions while leaving their intellectual functions intact. Such individuals often proceed to make a series of poor life decisions because they are unable to properly evaluate the impact of these decisions on the self and others; they have no feeling.[32] One can imagine the negative consequences if NASA's manned spacecraft were designed by emotionless rather than caring engineers. In fact, strong emotions frequently figure in the decision-making process that corrects ethical errors (Chapter 12), and so-called whistleblowers often report that they were motivated by emotion to protest decision errors. Strong (positive) emotion has also been implicated in creative decision making and the proper use of intuition to solve problems. Such intuition (Chapter 1) can lead to the successful short-circuiting of the steps in the rational model when speed is of the essence.

Despite these examples of how emotion can help decision making, there are many cases in which strong emotions are a hindrance. The folk saying "blinded by emotion" has some truth to it, as people experiencing strong emotions are often self-focused and distracted from the actual demands of the problem at hand. Most of our information about the impact of emotions on decisions is anecdotal, because people are often reticent to participate in field research about emotional issues and because it is not ethical to invoke strong emotions in lab research. One clever field study did document how excessive pride led highly paid CEOs to pay too much for firms they were acquiring.[33] Other business press evidence implicates angry CEOs losing their heads in competitive bidding for acquisitions (escalation of commitment). A common theme over the years has been how excessive emotional conflict between business partners or family business members provokes questionable business decisions.

In contrast to the case for strong emotions, there is much research on the impact of mood on decision making. You will recall from Chapter 4 that moods are relatively mild, unfocused states of positive or negative feeling. The research on mood and decision making reveals some very interesting paradoxes. For one thing, mood is a pretty low-key state, and you might be inclined to think it would not have much impact on decisions. In fact, there is plenty of evidence that mood affects *what* and



Decision makers in a good mood can overestimate the likelihood of good events and use short-cut decision strategies.

how people think when making decisions. Next, you might imagine that the impact of mood would be restricted to mundane, structured decision problems. In fact, mood has its greatest impact on uncertain, ambiguous decisions of the type that are especially crucial for organizations. Here is what the research reveals:[34]

- People in a positive mood tend to remember positive information. Those in a negative mood remember negative information.
- People in a positive mood tend to evaluate objects, people, and events more positively. Those in a negative mood provide more negative evaluations.
- People in a good mood tend to overestimate the likelihood that good events will occur and underestimate the occurrence of bad events. People in a bad mood do the opposite.
- People in a good mood adopt simplified, short-cut decision-making strategies, more likely violating the rational model. People in a negative mood are prone to approach decisions in a more deliberate, systematic, detailed way.
- Positive mood promotes more creative, intuitive decision making.

As you can see, it makes perfect sense to hope for your job interview to be conducted by a person in a good mood or to try to create a good mood on the part of your clients! Notice that the impact of mood on decision making is not necessarily dysfunctional. If the excesses of optimism can be controlled, those in a good mood can make creative decisions. If the excesses of pessimism can be controlled, those in a negative mood can actually process information more carefully and effectively. In a very interesting simulation of foreign currency trading, it was found that traders in a good mood performed more poorly (by losing money) than those in bad or neutral moods. Those in a bad mood performed better, but were rather conservative. Traders in a neutral mood did best, tolerating risk but not being overconfident.[35] Thus, the investment practitioners' advice to remain calm during turbulent markets has some validity.

A fine example of how mood and emotion can lead to faulty decision making can be seen in the "dot.com meltdown" of the late 1990s. In this era, hundreds of firms were formed to exploit the potential wealth of e-commerce. An economic boom, ready capital, advancing technology, and the model of a few overnight "Internet millionaires" created a positive mood that led to overly intuitive decisions, false creativity, and exaggerated optimism. Mood is contagious, and many startup firms, fearing to be left behind, were founded with vague goals and vaguer business plans. Many consisted of little more than a website, and "hits" were confused with cash flow. The ensuing crash left the firms founded on careful business decision-making principles to enjoy the spoils of the technology revolution.

Rational Decision Making—A Summary

The rational decision-making model in Exhibit 11.1 provides a good guide for how many decisions *should* be made but only a partially accurate view of how they *are* made. For complex, unfamiliar decisions, such as choosing an occupation, the rational model provides a pretty good picture of how people actually make decisions.[36] Also, organizational decision makers often follow the rational model when they agree about the goals they are pursuing.[37] On the other hand, there is plenty of case study evidence of short-circuiting the rational model in organizational decisions, in part because of the biases we discussed above.[38] Thus, it should not be surprising that a recent study of 356 decisions in medium to large organizations in the United States and Canada found that half the decisions made in organizations fail. These failures were found to be primarily due to the use of poor tactics on the part of managers who impose solutions, limit the search for alternatives, and use power to implement their plans.[39] However, true experts in a field will often short-circuit

Exhibit 11.3
Perfectly rational decision making contrasted with bounded rationality.

Stage	Perfect Rationality	Bounded Rationality
Problem Identification	Easy, accurate perception of gaps that constitute problems	Perceptual defence; jump to solutions; attention to symptoms rather than problems; mood affects memory
Information Search	Free; fast; right amount obtained	Slow; costly; reliance on flawed memory; obtain too little or too much
Development of Alternative Solutions	Can conceive of all	Not all known
Evaluation of Alternative Solutions	Ultimate value of each known; probability of each known; only criterion is economic gain	Potential ignorance of or miscalculation of values and probabilities; criteria include political factors; affected by mood
Solution Choice	Maximizes	Satisfices
Solution Implementation	Considered in evaluation of alternatives	May be difficult owing to reliance on others
Solution Evaluation	Objective, according to previous steps	May involve justification, escalation to recover sunk costs, faulty hindsight

the rational model, using their intuitive knowledge base stored in memory to skip steps logically.[40] Exhibit 11.3 summarizes the operation of perfect and bounded rationality at each stage of the decision process. Exhibit 11.4 summarizes the various cognitive biases that we have covered.

Group Decision Making

Many, many organizational decisions are made by groups rather than individuals, especially when problems are ill structured. In this section, we shall consider the advantages and problems of group decision making.

Why Use Groups?

There are a number of reasons for employing groups to make organizational decisions.

Exhibit 11.4
Summary of cognitive biases in decision making.

- Decision makers tend to be overconfident about the decisions that they make.
- Decision makers tend to seek out information that confirms their own problem definitions and solutions. (Confirmation bias)
- Decision makers tend to remember and incorporate vivid, recent events into their decisions.
- Decision makers fail to incorporate known existing data about the likelihood of events into their decisions.
- Decision makers ignore sample sizes when evaluating samples of information.
- Decision makers overestimate the odds of complex chains of events occurring.
- Decision makers do not adjust estimates enough from some initial estimate that serves as an anchor as they acquire more information. (Anchoring effect)
- Decision makers have difficulty ignoring sunk costs when making subsequent decisions.
- Decision makers overestimate their ability to have predicted events after-the-fact, take responsibility for successful decision outcomes, and deny responsibility for unsuccessful outcomes. (Hindsight)

Decision Quality. Experts often argue that groups or teams can make higher-quality decisions than individuals. This argument is based on the following three assumptions:

- Groups are *more vigilant* than individuals are—more people are scanning the environment.
- Groups can *generate more ideas* than individuals can.
- Groups can *evaluate ideas better* than individuals can.

At the problem identification and information search stages, vigilance is especially advantageous. A problem that some group members miss might be identified by others. For example, a member of the board of directors might notice a short article in an obscure business publication that has great relevance for the firm. In searching for information to clarify the problem suggested in the article, other members of the board might possess unique information that proves useful.

When it comes to developing alternative solutions, more people should literally have more ideas, if only because someone remembers something that others have forgotten. In addition, members with different backgrounds and experiences may bring different perspectives to the problem. This is why undergraduate students, graduate students, faculty, and administrators are often included on university task forces to improve the library or develop a course evaluation system.

When it comes to evaluating solutions and choosing the best one, groups have the advantage of checks and balances—that is, an extreme position or incorrect notion held by one member should be offset by the pooled judgments of the rest of the group.

These characteristics suggest that groups *should* make higher-quality decisions than individuals can. Shortly, we will find out whether they actually do so.

Decision Acceptance and Commitment. As we pointed out in our discussion of participative leadership in Chapter 9, groups are often used to make decisions on the premise that a decision made in this way will be more acceptable to those involved. Again, there are several assumptions underlying this premise:

- People wish to be involved in decisions that will affect them.
- People will better understand a decision in which they participated.
- People will be more committed to a decision in which they invested personal time and energy.

The acceptability of group decisions is especially useful in dealing with a problem described earlier—getting the decision implemented. If decision makers truly understand the decision and feel committed to it, they should be willing to follow through and see that it is carried out.

Diffusion of Responsibility. High quality and acceptance are sensible reasons for using groups to make decisions. A somewhat less admirable reason to employ groups is to allow for **diffusion of responsibility** across the members in case the decision turns out poorly. In this case, each member of the group will share part of the burden of the negative consequences, and no one person will be singled out for punishment. Of course, when this happens, individual group members often "abandon ship" and exhibit biased hindsight—"I knew all along that the bid was too high to be accepted, but they made me go along with them."

Diffusion of responsibility. The ability of group members to share the burden of the negative consequences of a poor decision.

Do Groups Actually Make Higher-Quality Decisions Than Individuals Do?

The discussion in the first part of the previous section suggested that groups *should* make higher-quality decisions than individuals do. But *do* they? Is the frequent use

of groups to make decisions warranted by evidence? The answer is yes. One review concludes that "groups usually produce more and better solutions to problems than do individuals working alone."[41] Another concludes that group performance is superior to that of the average individual in the group.[42] More specifically, groups should perform better than individuals when

- the group members differ in relevant skills and abilities, as long as they do not differ so much that conflict occurs;
- some division of labour can occur;
- memory for facts is an important issue; and
- individual judgments can be combined by weighting them to reflect the expertise of the various members.[43]

To consolidate your understanding of these conditions, consider a situation that should favour group decision making: A small construction company wishes to bid on a contract to build an apartment complex. The president, the controller, a construction boss, and an engineer work together to formulate the bid. Since they have diverse backgrounds and skills, they divide the task initially. The president reviews recent bids on similar projects in the community; the controller gets estimates on materials costs; the engineer and boss review the blueprints. During this process, each racks his or her brain to recall lessons learned from making previous bids. Finally, they put their information together, and each member voices an opinion about what the bid should be. The president decides to average these opinions to arrive at the actual bid, since each person is equally expert in his or her own area.

Disadvantages of Group Decision Making

Although groups have the ability to develop high-quality, acceptable decisions, there are a number of potential disadvantages to group decision making.

Time. Groups seldom work quickly or efficiently, compared with individuals. This is because of the process losses (Chapter 7) involved in discussion, debate, and coordination. The time problem increases with group size. When the speed of arriving at a solution to a problem is a prime factor, organizations should avoid using groups.

Conflict. Many times, participants in group decisions have their own personal axes to grind or their own resources to protect. When this occurs, decision quality may take a back seat to political wrangling and infighting. In the example about the construction company we presented earlier, the construction boss might see it to his advantage to overestimate the size of the crew required to build the apartments. On the other hand, the controller might make it her personal crusade to pare labour costs. A simple compromise between these two extreme points of view might not result in the highest-quality or most creative decision.

Domination. The advantages of group decision making will seldom be realized if meetings are dominated by a single individual or a small coalition. Even if a dominant person has good information, this style is not likely to lead to group acceptance and commitment. If the dominant person is particularly misinformed, the group decision is very likely to be ineffective.

Groupthink. In retrospect, have you ever been involved in a group decision that you knew was a "loser" but that you felt unable to protest? Perhaps you thought you were the only one who had doubts about the chosen course of action. Perhaps you tried to speak up, but others criticized you for not being on the team. Maybe you found yourself searching for information to confirm that the decision was cor-

rect and ignoring evidence that the decision was bad. What was happening? Were you suffering from some strange form of possession? Mind control?

In Chapter 8, we discussed the process of conformity in social settings. As you might expect, conformity can have a strong influence on the decisions that groups make. The most extreme influence is seen when **groupthink** occurs. This happens when group pressures lead to reduced mental efficiency, poor testing of reality, and lax moral judgment.[44] In effect, unanimous acceptance of decisions is stressed over quality of decisions.

Groupthink. The capacity for group pressure to damage the mental efficiency, reality testing, and moral judgment of decision-making groups.

Psychologist Irving Janis, who developed the groupthink concept, felt that high group cohesiveness was at its root. It now appears that other factors might be equally important or more important.[45] These include concern for approval from the group and the isolation of the group from other sources of information. However, the promotion of a particular decision by the group leader appears to be the strongest cause.[46] In any event, Janis provides a detailed list of groupthink symptoms:

- *Illusion of invulnerability.* Members are overconfident and willing to assume great risks. They ignore obvious danger signals.
- *Rationalization.* Problems and counterarguments that members cannot ignore are "rationalized away."
- *Illusion of morality.* The decisions the group adopts are not only perceived as sensible, they are also perceived as *morally* correct.
- *Stereotypes of outsiders.* The group constructs unfavourable stereotypes of those outside the group who are the targets of their decisions.
- *Pressure for conformity.* Members pressure each other to fall in line and conform with the group's views.
- *Self-censorship.* Members convince themselves to avoid voicing opinions contrary to the group.
- *Illusion of unanimity.* Members perceive that unanimous support exists for their chosen course of action.
- *Mindguards.* Some group members may adopt the role of "protecting" the group from information that goes against its decisions.[47]

Obviously, victims of groupthink are operating in an atmosphere of unreality that should lead to low-quality decisions. Groupthink has been implicated in the decision process that led to NASA's fatal launch of *Challenger* in 1986.[48] We can also see it in the decision making process in the NASA Hubble example, where an aberration in the telescope's primary mirror was the source of the astronomical repair costs.[49] To begin with, a dominant leader in charge of the internal mirror tests appears to have isolated the mirror project team from outside sources of information. Symptoms of groupthink followed: At least three sets of danger signals that the mirror was flawed were ignored or explained away (illusion of invulnerability and rationalization); an outside firm, Kodak, was dismissed as too incompetent to test the mirror (stereotype of outsiders); the consultant who suggested that Kodak test the mirror received bitter criticism but still felt he did not protest enough in the end (mindguarding and self-censorship); the defence of the isolated working methods was viewed as more "theological" than technical (illusion of morality).

What can prevent groupthink? Leaders must be careful to avoid exerting undue pressure for a particular decision outcome and concentrate on good decision processes. Also, leaders should establish norms that encourage and even reward responsible dissent, and outside experts should be brought in from time to time to challenge the group's views.[50] Some of the decision-making techniques we discuss later in the chapter should help prevent the tendency as well.

How Do Groups Handle Risk?

Almost by definition, problems that are suitable for group decision making involve some degree of risk and uncertainty. This raises a very important question: Do groups make decisions that are more or less risky than those of individuals? Or will the degree of risk assumed by the group simply equal the average risk preferred by its individual members? The answer here is obviously important. Consider the following scenario:

> An accident has just occurred at a nuclear power plant. Several corrections exist, ranging from expensive and safe to low-cost but risky. On the way to an emergency meeting, each nuclear engineer formulates an opinion about what should be done. But what will the group decide?

Conventional wisdom provides few clear predictions about what the group of engineers will decide to do. On the one hand, it is sometimes argued that groups will make riskier decisions than individuals do because there is security in numbers—that is, diffusion of responsibility for a bad decision encourages the group to take greater chances. On the other hand, it is often argued that groups are cautious, with the members checking and balancing each other so much that a conservative outcome is sure to occur. Just contrast the committee-laden civil service with the swashbuckling style of independent operators such as Ted Turner and Donald Trump!

Given this contradiction of common sense, the history of research into group decision making and risk is both interesting and instructive. A Massachusetts Institute of Technology student, J. A. F. Stoner, reported in a Master's thesis that he had discovered clear evidence of a **risky shift** in decision making.[51] Participants in the research reviewed hypothetical cases involving risk, such as those involving career choices or investment decisions. As individuals, they recommended a course of action. Then they were formed into groups, and the groups discussed each case and came to a joint decision. In general, the groups tended to advise riskier courses of action than the average risk initially advocated by their members. This is the risky shift. As studies were conducted by others to explore the reasons for its causes, things got more complicated. For some groups and some decisions, **conservative shifts** were observed. In other words, groups came to decisions that were *less* risky than those of the individual members before interaction.

Risky shift. The tendency for groups to make riskier decisions than the average risk initially advocated by their individual members.

Conservative shift. The tendency for groups to make less risky decisions than the average risk initially advocated by their individual members.

It is now clear that both risky and conservative shifts are possible, and they occur in a wide variety of real settings, including investment and purchasing decisions. But what determines which kind of shift occurs? A key factor appears to be the initial positions of the group members before they discuss the problem. This is illustrated in Exhibit 11.5. As you can see, when group members are somewhat con-

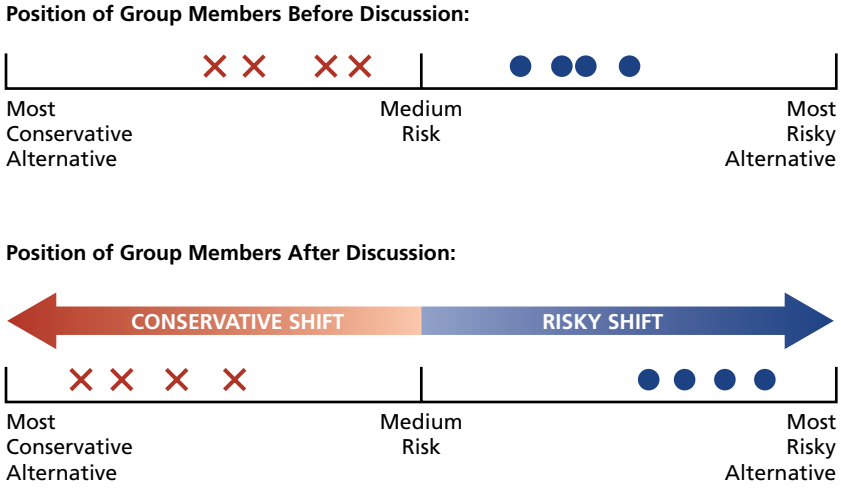


Exhibit 11.5
The dynamics of risky and conservative shifts for two groups.

servative before interaction (the Xs), they tend to exhibit a conservative shift when they discuss the problem. When group members are somewhat risky initially (the ●s), they exhibit a risky shift after discussion. In other words, *group discussion seems to polarize or exaggerate the initial position of the group*.[52] Returning to the nuclear accident, if the engineers initially prefer a somewhat conservative solution, they should adopt an even more conservative strategy during the meeting.

Why do risky and conservative shifts occur when groups make decisions? Evidence indicates two main factors:[53]

- Group discussion generates ideas and arguments that individual members have not considered before. This information naturally favours the members' initial tendency toward risk or toward conservatism. Since discussion provides "more" and "better" reasons for the initial tendency, the tendency ends up being exaggerated.
- Group members try to present themselves as basically similar to other members but "even better." Thus, they try to one-up others in discussion by adopting a slightly more extreme version of the group's initial stance.

A somewhat worrisome research finding is that groups that communicate electronically via computer-mediated methods (Chapter 10) are inclined to polarize even more than face-to-face groups.[54] Such electronic communication is very common during complex NASA missions.

In summary, managers should be aware of the tendency for group interaction to polarize initial risk levels. If this polarization results from the sensible exchange of information, it might actually improve the group's decision. However, if it results from one-upmanship, it might lead to low-quality decisions.

Improving Decision Making in Organizations

Can the decision making process and its outcomes be improved? One study recently found that managers can improve the success of their decisions by using various tactics, such as making the need for action clear at the outset, setting objectives, carrying out an unrestricted search for solutions, and getting key people to participate.[55] It stands to reason that organizational decision making can improve if decision makers receive encouragement to follow more closely the rational decision-making model shown in Exhibit 11.1. This should help to preclude the various biases and errors that we have alluded to throughout the chapter. Each of the following techniques has this goal.

Training Discussion Leaders

When organizations use group decision making, an appointed leader often convenes the group and guides the discussion. The actions of this leader can "make or break" the decision. On the one hand, if the leader behaves autocratically, trying to "sell" a preconceived decision, the advantages of using a group are obliterated, and decision acceptance can suffer. If the leader fails to exert *any* influence, however, the group might develop a low-quality solution that does not meet the needs of the organization. The use of role-playing training to develop these leadership skills has increased the quality and acceptance of group decisions. The following are examples of the skills that people learn in discussion leader training.[56]

- State the problem in a nondefensive, objective manner. Do not suggest solutions or preferences.
- Supply essential facts and clarify any constraints on solutions (e.g., "We can't spend more than $25,000").

- Draw out all group members. Prevent domination by one person, and protect members from being attacked or severely criticized.
- Wait out pauses. Do not make suggestions or ask leading questions.
- Ask stimulating questions that move the discussion forward.
- Summarize and clarify at several points to mark progress.

Stimulating and Managing Controversy

Full-blown conflict among organizational members is hardly conducive to good decision making. Individuals will withhold information, and personal or group goals will take precedence over developing a decision that solves organizational problems. On the other hand, a complete lack of controversy can be equally damaging, since alternative points of view that may be very relevant to the issue at hand will never surface. Such a lack of controversy is partially responsible for the groupthink effect, and it also contributes to many cases of escalation of commitment to flawed courses of action. For example, opportunities to express concern over the fate of the *Columbia* shuttle were not seized upon during face-to-face meetings, but were kept in electronic form between a small circle of colleagues.

Research shows a variety of ways to stimulate controversy in decision-making groups: incorporating members with diverse ideas and backgrounds, forming subgroups to "tear the problem apart," and establishing norms that favour the open sharing of information.[57] However, these tactics must be managed carefully to ensure that open conflict does not result. The discussion skills covered in the previous section can help here.

Devil's advocate. A person appointed to identify and challenge the weaknesses of a proposed plan or strategy.

One interesting method of controversy stimulation is the appointment of a **devil's advocate** to challenge existing plans and strategies. The advocate's role is to challenge the weaknesses of the plan or strategy and state why it should not be adopted. For example, a bank might be considering offering an innovative kind of account. Details to be decided include interest rate, required minimum balance, and so on. A committee might be assigned to develop a position paper. Before a decision is made, someone would be assigned to read the paper and "tear it apart," noting potential weaknesses. Thus, a decision is made in full recognition of the pros and cons of the plan.

The controversy promoted by the devil's advocate improves decision quality.[58] However, to be effective, the advocate must present his or her views in an objective, unemotional manner.

Traditional and Electronic Brainstorming

Brainstorming is the "brain child" of a Madison Avenue advertising executive.[59] Its major purpose is to increase the number of creative solution alternatives to problems. Thus, **brainstorming** focuses on the *generation* of ideas rather than the *evaluation* of ideas. If a group generates a large number of ideas, the chance of obtaining a truly creative solution is increased.

Brainstorming. An attempt to increase the number of creative solution alternatives to problems by focusing on idea generation rather than evaluation.

Brainstorming was originally conceived as a group technique. It was assumed that in generating ideas, group members could feed off each other's suggestions and be stimulated to offer more creative solutions. To ensure this, the group is encouraged to operate in a free-wheeling, off-the-wall manner. No ideas should be considered too extreme or unusual to be voiced. In addition, no criticism of ideas should be offered, since this can inhibit useful lines of thinking. For instance, an advertising agency might convene a group to generate names for a new toothpaste or soft drink. Similarly, a government agency might convene a group to generate possible solutions for welfare fraud.

Traditional brainstorming has not fulfilled its full creative promise. Research has shown conclusively that individuals working alone tend to generate more ideas than

APPLIED FOCUS Brainstorming at IDEO

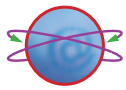
IDEO is the biggest product design firm in the United States. Founded in 1978 by David Kelley, it is headquartered in Palo Alto, California, but also has offices in Tokyo, London, Boston, Chicago, and several other cities. Most of its employees are industrial designers and mechanical engineers, serving clients that vary from startup firms to the *Fortune* Top 50. The range of IDEO's design contributions is immense, spanning laptop computers, sports equipment, and surgical devices. Well-known products include the first Apple Computer mouse, Nike sunglasses, Crest toothpaste tubes, and the Palm V electronic organizer. The company is the winner of many product design awards and is so admired that its clients requested that it offer workshops on innovation and creativity. NEC, Kodak, and Steelcase are among the firms that send employees to these workshops.

IDEO employees feel that an important key to the firm's success is its extensive use of brainstorming to exchange design ideas. The average IDEO engineer participates in 24 brainstorming sessions a year. Sessions last from 45 minutes to two hours and include three to 10 participants with various specialities and skills. "Rules" for brainstorming, prominently displayed on meeting room walls, include (1) one discussion at a time, (2) stay on the topic, (3) build on others' ideas, (4) defer judgment, and (5) encourage wild ideas.

Researchers Robert Sutton and Andrew Hargadon were interested in why IDEO makes such extensive use of group brainstorming, in light of the research showing that the procedure does not result in more ideas being generated than occur when people "brainstorm" alone. What they found was that the procedure results in a number of other important creative and business advantages. In terms of the organizational culture, they found that it helped organizational memory and supported a culture of wisdom—that is, ideas from one session can be used on subsequent unrelated projects, and participants learn to appreciate the good ideas of others. At the individual level, the sessions motivate and stimulate the engineers and allow them to show off their good ideas to their colleagues. Finally, IDEO uses the brainstorming sessions to impress their clients, who really get to see how the design process unfolds. Thus, brainstorming shapes the organizational culture, helps retain good talent, and contributes to client confidence.

Sources: Brown, E. (1999, April 12). A day at innovation university. *Fortune*, 163–165; Sutton, R.I., & Hargadon, A. (1996). Brainstorming groups in context: Effectiveness in a product design firm. *Administrative Science Quarterly, 41*, 685–718; Sutton, R.I., & Kelley, T.A. (1997, Fall). Creativity doesn't require isolation: Why product designers bring visitors "backstage." *California Management Review*, 75–91.

when in groups.[60] In other words, four people working independently (and encouraged to be creative and nonevaluative) will usually generate more ideas than the same people working as a team. Why is this? Likely explanations include inhibition, domination of the group by an ineffective member, or the sheer physical limitations of people trying to talk simultaneously. However, as "Applied Focus: *Brainstorming at IDEO*" illustrates, brainstorming can provide advantages that extend beyond the mere number of ideas generated.



IDEO Product Development
www.ideo.com

An alternative to traditional brainstorming is electronic brainstorming. **Electronic brainstorming** uses computer-mediated communication to accomplish the same goal as traditional brainstorming: the generation of novel ideas without evaluation. As we noted, face-to-face interaction actually reduces individual brainstorming performance. But what happens if people brainstorm as an electronic group?

Electronic brainstorming. The use of computer-mediated technology to improve traditional brainstorming practices.

Once over the size of two members, electronic brainstorming groups perform better than face-to-face groups in terms of both quantity and quality of ideas.[61] Also, as electronic groups get larger, they tend to produce more ideas, but the ideas-per-person measure remains stable. In contrast, as face-to-face groups get bigger, fewer and fewer ideas per person are generated (remember social loafing from Chapter 7). What accounts for the success of electronic brainstorming? Reduced inhibition about participating and the ability for people to enter ideas simultaneously without waiting for others seem to be the main reasons. Notice that these factors become especially critical as the group gets bigger. Some organizations have done electronic brainstorming with up to 30-member groups.

Nominal Group Technique

Nominal group technique. A structured group decision-making technique in which ideas are generated without group interaction and then systematically evaluated by the group.

The fact that nominal (in name only) brainstorming groups generate more ideas than interacting brainstorming groups gave rise to the **nominal group technique** (NGT) of decision making. Unlike brainstorming, NGT is concerned with both the generation of ideas and the evaluation of these ideas:

> Imagine a meeting room in which seven to 10 individuals are sitting around a table in full view of each other; however, at the beginning of the meeting they do not speak to each other. Instead, each individual is writing ideas on a pad of paper in front of him or her. At the end of five to 10 minutes, a structured sharing of ideas takes place. Each individual, in round-robin fashion, presents one idea from his or her private list. A recorder writes that idea on a flip chart in full view of other members. There is still no discussion at this point of the meeting—only the recording of privately narrated ideas. Round-robin listing continues until all members indicate they have no further ideas to share. Discussion follows during the next phase of the meeting; however, it is structured so that each idea receives attention before independent voting. This is accomplished by asking for clarification, or stating support or nonsupport of each idea listed on the flip chart. Independent voting then takes place. Each member privately, in writing, selects priorities by rank-ordering (or rating). The group decision is the mathematically pooled outcome of the individual votes.[62]

As you can see, NGT carefully separates the generation of ideas from their evaluation. Ideas are generated nominally (without interaction) to prevent inhibition and conformity. Evaluation permits interaction and discussion, but it occurs in a fairly structured manner to be sure that each idea gets adequate attention. NGT's chief disadvantage would seem to be the time and resources required to assemble the group for face-to-face interaction. The Delphi technique was developed, in part, to overcome this problem.

The Delphi Technique

Delphi technique. A method of pooling a large number of expert judgments by using a series of increasingly refined questionnaires.

The **Delphi technique** of decision making was developed at the Rand Corporation to forecast changes in technology. Its name derives from the future-telling ability of the famous Greek Delphic Oracle.[63] Unlike NGT, the Delphi process relies solely on a nominal group—participants do not engage in face-to-face interaction. Thus, it is possible to poll a large number of experts without assembling them in the same place at the same time. We should emphasize that these experts do not actually make a final decision; rather, they provide information for organizational decision makers.

The heart of Delphi is a series of questionnaires sent to respondents. Minimally, there are two waves of questionnaires, but more are not unusual. The first questionnaire is usually general in nature and permits free responses to the problem. For example, suppose the CEO of a large corporation wishes to evaluate and improve the firm's customer service. A random sample of employees who have worked closely with customers would receive an initial questionnaire asking them to list the strengths and weaknesses of the existing approach to customers. The staff would collate the responses and develop a second questionnaire that might share these responses and ask for suggested improvements. A final questionnaire might then be sent asking respondents to rate or rank each improvement. The staff would then merge the ratings or rankings mathematically and present them to the president for consideration.

A chief disadvantage of Delphi is the rather lengthy time frame involved in the questionnaire phases, although fax and e-mail can speed up sending and receiving. In addition, its effectiveness depends on the writing skills of the respondents and their interest in the problem, since they must work on their own rather than as part

of an actual group. Despite these problems, Delphi is an efficient method of pooling a large number of expert judgments, while avoiding the problems of conformity and domination that can occur in interacting groups.

the manager's Notebook

Turning Decision Making into a Science at General Electric Mortgage Insurance

1. The types of decisions that GE representatives make can be considered examples of ill-structured problems—that is, the existing and desired states are not always clear, and how to get from one state to the other is not straightforward. Furthermore, such decisions are risky, involve a high degree of uncertainty, and can result in costly errors. Therefore, it can be quite advantageous if programs can be developed to standardize these types of decisions through the use of programs. Programming such decisions can provide a useful means of solving the types of problems that GE representatives must deal with on a regular basis. However, the effectiveness of such programs are only as good as the decision-making process that is used to develop them. Obviously, GE's use of its most successful representatives to develop a program based on how they make superior decisions is the key to the development of a successful programmed decision-making system. Once the system has been developed, other representatives can be trained to use it. This should result in more effective decisions for all users of the system.
2. The group of successful representatives developed a system for accurately predicting which home buyers delinquent on their mortgage payments would be most likely to recover and those that should sell their houses. As a result, GE created a computer program that lets all representatives be equally good at their jobs. The program works much like income tax software, allowing the representatives to respond to a series of questions about a borrower's income, willingness to pay, ZIP code (to determine if houses in the area have depreciated in value), assets and other debts, such as car loans. The new system resulted in avoiding 1,600 foreclosures in its first year, up 43 percent, and saved GE about $8 million by making decisions more quickly, and by more accurately selecting which loans could be cured. The satisfaction rating from customers—the mortgage lenders that GE insures—rose from 61 percent to 76 percent. The program has also been almost perfect at predicting which borrowers, under threat of foreclosure, eventually will agree to pay for default losses and at what percentage. In 1998, GE was awarded the RIT/*USA Today* Quality Cup for service businesses in recognition of the development of the system.

Learning Objectives Checklist

1. *Decision making* is the process of developing a commitment to some course of action. Alternatively, it is a problem-solving process. A problem exists when a gap is perceived between some existing state and some desired state. Some problems are well structured. This means that existing and desired states are clear, as is the means of getting from one state to the other. Well-structured problems are often solved with programs, which simply standardize solutions. Programmed decision making is effective as long as the program is developed rationally and as long as conditions do not change. Ill-structured problems contain some combination of an unclear existing state, an unclear desired state, or unclear methods of getting from one state to the other. They tend to be unique and nonrecurrent, and they require nonprogrammed decision making, in which the rational model comes into play.
2. Rational decision making includes (1) problem identification, (2) information search, (3) development of alternative solutions, (4) evaluation of alterna-

tives, (5) choice of the best alternative, (6) implementation, and (7) ongoing evaluation of the implemented alternative. The imaginary, perfectly rational decision maker has free and easy access to all relevant information, can process it accurately, and has a single ultimate goal—economic maximization. Real decision makers must suffer from bounded rationality. They do not have free and easy access to information, and the human mind has limited information processing capacity and is susceptible to a variety of cognitive biases. In addition, time constraints and political considerations can outweigh anticipated economic gain. As a result, bounded decision makers usually satisfice (choose a solution that is "good enough") rather than maximize.

3. *Framing* refers to the aspects of the presentation of information about a problem that are assumed by decision makers. A frame could include assumptions about the boundaries of a problem, the possible outcomes of a decision, or the reference points used to decide if a decision is successful. Problems that are framed as an investment versus a cost, or as a potential gain versus a potential loss, can affect decision making processes. *Cognitive biases* are tendencies to acquire and process information in a particular way that is prone to error. These biases constitute assumptions and shortcuts that can improve decision-making efficiency, but they frequently lead to serious errors in judgment. Examples include overemphasizing recent information, overconfidence based on past success, perceptual defence, and faulty hindsight.

4. Escalation of commitment is the tendency to invest additional resources in an apparently failing course of action. This tendency emerges from people's desires to justify past decisions and attempts to recoup sunk costs incurred as the result of a past decision.

5. Although emotions can enhance the decision making process in relation to correcting ethical errors or when dealing with creative problems, they can also distract and unsettle decision makers, and lead to poor choices. Research has shown that mood can also have an important impact on the decision-making process, especially for uncertain or ambiguous problems. Mood can affect information recall, evaluation, creativity, time reference, and projected outcomes.

6. Groups can often make higher-quality decisions than individuals because of their vigilance and their potential capacity to generate and evaluate more ideas. Also, group members might accept more readily a decision in which they have been involved. Given the proper problem, groups will frequently make higher-quality decisions than individuals. However, using groups takes a lot of time and might provoke conflict. In addition, groups might fall prey to *groupthink*, in which social pressures to conform to a particular decision outweigh rationality. Groups might also make decisions that are more risky or conservative than those of individuals.

7. Attempts to improve organizational decision making have involved training discussion leaders, stimulating controversy, brainstorming, the nominal group technique, and the Delphi technique.

ob FLASHBACK

How Can Managers Make Good Decisions Despite Inaccurate Perceptions?

In Chapter 3 we defined perception as the process of interpreting the messages of our senses to provide order and meaning to the environment. Logically, accurate perceptions would seem to be crucial for successful decision making. Johns Mezias and William Starbuck review considerable evidence showing that managers' perceptions are typically quite inaccurate, even among those from very successful organizations. For instance, managers tend to misperceive the degree of stability of their businesses' environments, inaccurately report firm and industry sales, and misjudge their business unit's quality performance. Given such inaccurate perceptions, how can organizations manage to adapt and prosper? At least three factors may explain how good decisions can be made despite individual managers' perceptual errors. First, Mezias and Starbuck conclude that focusing on general long-term goals may reduce the impact of specific inaccurate perceptions. For example, correctly deciding how to improve quality may not require an exact grasp of current quality levels. Second, important organizational decisions are seldom made by individual managers, and consensus may average out errors to provide accurate decision data. Third, Chip Heath, Richard Larrick, and Joshua Klayman describe how organizations put in place routines and procedures that make "cognitive repairs" to faulty individual perceptions. Examples include formal decision checklists, regular staff meetings, and the provision of buffer time. Microsoft builds buffer time into its project schedules to compensate for people's tendency to underestimate how long tasks take to complete.

Sources: Heath, C., Larrick, R. P., & Klayman, J. (1998). Cognitive repairs: How organizational practices can compensate for individual shortcomings. *Research in Organizational Behavior, 20*, 1–37; Mezias, J. M., & Starbuck, W. H. (2003). Studying the accuracy of managers' perceptions: A research odessey. *British Journal of Management, 14*, 3–17.

Discussion Questions

1. The director of an urban hospital feels that there is a turnover problem among the hospital's nurses. About 25 percent of the staff resign each year, leading to high replacement costs and disruption of services. Use the decision model in Exhibit 11.1 to explore how the director might proceed to solve this problem. Discuss probable bounds to the rationality of the director's decision.
2. Describe a decision-making episode (in school, work, or personal life) in which you experienced information overload. How did you respond to this overload? Did it affect the quality of your decision?
3. Many universities must register thousands of students for courses each semester. Is this a well-structured problem or an ill-structured problem? Does it require programmed decisions or nonprogrammed decisions? Elaborate.
4. An auditing team fails to detect a case of embezzlement that has gone on for several months at a bank. How might the team members use hindsight to justify their faulty decisions?
5. A very cohesive planning group for a major oil company is about to develop a long-range strategic plan. The head of the unit is aware of the groupthink problem and wishes to prevent it. What steps should she take?
6. Discuss the implications of diffusion of responsibility, risky shift, and conservative shift for the members of a parole board. Also, consider the role of emotion and mood.
7. Discuss how the concepts of groupthink and escalation of commitment might be related to some cases of unethical decision making (and its cover-up) in business.
8. What are the similarities and differences of the nominal group technique and the Delphi technique? What are the comparative advantages and disadvantages?

Integrative Discussion Questions

1. Consider the role of communication in decision making. Explain how barriers to effective manager–employee communication can affect decision making in organizations. How can personal and organizational approaches for improving communication improve decision making?
2. Does group structure influence group decision making? Explain how each of the following structural characteristics might influence group decision quality, acceptance and commitment, and diffusion of responsibility: group size, diversity, norms, roles, status, and cohesiveness.

Experiential Exercise

The New Truck Dilemma

Preparation for Role Playing

The instructor will:

1. Read general instructions to class as a whole.
2. Place data regarding name, length of service, and make and age of truck on chalkboard for ready reference by all.
3. Divide class into groups of six. Any remaining members should be asked to join one of the groups and serve as observers.
4. Assign roles to each group by handing out slips with the names Chris Marshall, Terry, Sal, Jan, Sam, and Charlie. Ask each person to read his or her own role only. Instructions should not be consulted once role playing is begun.
5. Ask the Chris Marshalls to stand up when they have completed reading their instructions.
6. When all Chris Marshalls are standing, ask that each crew member display conspicuously the slip of paper with his or her role name so that Chris can tell who is who.

The Role-Playing Process

1. The instructor will start the role playing with a statement such as the following: "Chris Marshall has asked the crew to wait in the office. Apparently Chris wants to discuss something with the crew. When Chris sits down that will mean he or she has returned. What you say to each other is entirely up to you. Are you ready? All Chris Marshalls please sit down."
2. Role playing proceeds for 25 to 30 minutes. Most groups reach agreement during this interval.

Collection of Results

1. Each supervisor in turn reports his or her crew's solution. The instructor summarizes on the chalkboard by listing the initials of each repair person and indicating with arrows which truck goes to whom.
2. A tabulation should be made of the number of people getting a different truck, the crew members considering the solution unfair, and the supervisor's evaluation of the solution.

Discussion of Results

1. Comparison of solutions will reveal differences in the number of people getting a different truck, who gets the new one, the number dissatisfied, etc. Discuss why the same facts yield different outcomes.
2. The quality of the solution can be measured by the trucks retained. Highest quality would require the poorest truck to be discarded. Evaluate the quality of the solutions achieved.
3. Acceptance is indicated by the low number of dissatisfied repair people. Evaluate solutions achieved on this dimension.
4. List problems that are similar to the new truck problem. See how widely the group will generalize.

General Instructions

This is a role-playing exercise. *Do not read the roles given below until assigned to do so by your instructor*!

Assume that you are a repair person for a large utility. Each day you drive to various locations in the city to do repair work. Each of you drives a small truck and you take pride in keeping it looking good. You have a possessive feeling about your truck and like to keep it in good running order. Naturally, you would like to have a new truck, too, because a new truck gives you a feeling of pride.

Here are some facts about the trucks and the crew that reports to Chris Marshall, the supervisor of repairs:

Terry—17 years with the company, has a 2-year-old Ford
Sal—11 years with the company, has a 5-year-old Dodge
Jan—10 years with the company, has a 4-year-old Ford
Sam—5 years with the company, has a 3-year-old Ford
Charlie—3 years with the company, has a 5-year-old Chevrolet

Most of you do all your driving in the city, but Jan and Sam cover the jobs in the suburbs.

You will be one of the people mentioned above and will be given some further individual instructions. In acting your part in role playing, accept the facts as well as assume the attitude supplied in your specific role. From this point on, let your feelings develop in accordance with the events that transpire in the role-playing process. When facts or events arise that are not covered by the roles, make up things that are consistent with the way it might be in a real-life situation.

When the role playing begins, assume that Chris Marshall called the crew into the repair office.

Role for Chris Marshall, Supervisor. You are the supervisor of a repair crew, each of whom drives a small service truck to and from various jobs. Ever so often you get a new truck to exchange for an old one, and you have the problem of deciding which one of your crew you should give the new

truck to. Often there are hard feelings because each person seems to feel entitled to the new truck, so you have a tough time being fair. As a matter of fact, it usually turns out that whatever you decide, most of the crew consider it wrong. You now have to face the issue again because a new truck has just been allocated to you for assignment. The new truck is a Chevrolet.

In order to handle this problem, you have decided to put the decision up to the crew themselves. You will tell them about the new truck and will put the problem in terms of what would be the fairest way to assign the truck. *Do not take a position yourself because you want to do what the crew thinks is most fair.* However, be sure that the group reaches a decision.

Role for Terry. When a new Chevrolet truck becomes available, you think you should get it because you have most seniority and do not like your present truck. Your own car is a Chevrolet, and you prefer a Chevrolet truck such as you drove before you got the Ford.

Role for Sal. You feel you deserve a new truck. Your present truck is old, and since the more senior crew member has a fairly new truck, you should get the next one. You have taken excellent care of your present Dodge and have kept it looking like new. People deserve to be rewarded if they treat a company truck like their own.

Role for Jan. You have to do more driving than most of the other crew because you work in the suburbs. You have a fairly old truck and feel you should have a new one because you do so much driving.

Role for Sam. The heater in your present truck is inadequate. Since Charlie backed into the door of your truck, it has never been repaired to fit right. The door lets in too much cold air, and you attribute your frequent colds to this. You want a warm truck since you have a good deal of driving to do. As long as it has good tires, brakes, and is comfortable, you do not care about its make.

Role for Charlie. You have the poorest truck in the crew. It is five years old, and before you got it, it had been in a bad wreck. It has never been good, and you have put up with it for three years. It is about time you got a good truck to drive, and you feel the next one should be yours. You have a good accident record. The only accident you had was when you sprung the door of Sam's truck when he opened it as you backed out of the garage. You hope the new truck is a Ford, since you prefer to drive one.

Source: Adapted from Maier, N. R. F., & Verser, G. C. (1982). *Psychology in industrial organizations* (5th ed.). Copyright 1982 by Houghton Mifflin Company. Adapted with permission.

Case Incident

The Big Meeting

Larry was about to attend his first meeting since starting his new job. His group was going to meet with the president of the company to make a decision about whether to start testing a new drug on humans. The drug was designed to help people lose weight and was expected to make millions of dollars for the company. Just before the meeting, Larry's supervisor quietly told him that tests on animals have shown that the drug has terrible side effects and has resulted in the death of 15 percent of the animals tested. He also told Larry that this was known by everybody in the company, and he did not think the drug was ready to be tested on humans.

When the meeting began, the president of the company began to talk about how successful the company has been in the development of new drugs. He told them that the new drug will help millions of people, and that the public has a right to have it as soon as possible. "We have to begin testing immediately," he said, "It is our responsibility to continue our record of success, and our commitment to provide the public with drugs they need and desire. It is the right thing to do." The president then asked if anyone had anything to say before the group made a decision. Nobody said anything. Larry was shocked that his supervisor did not raise the issues he had mentioned to Larry before the meeting. So Larry decided to ask a question. "What about the results of the clinical trials with animals?" "The medical staff don't know what they're talking about," said the president. "They sometimes act like fools with those animals, and they don't know how to make business or management decisions, and that's what we have to do now." The group then unanimously voted to begin testing the drug on humans immediately. Larry could not believe that everybody supported the decision.

1. How rational was the decision to start testing the drug on humans? Is there any evidence of bounded rationality?
2. What are some of the issues in group decision making that might explain the decision to start testing the drug on humans?

Case Study

Standard Media Plan

It was a late Saturday afternoon in mid-December, and Bob Smith, a research analyst for L&H Marketing Research, was working furiously to complete the media plan portion of the Standard Grooming Products report. Standard was considering introducing a men's hairspray and needed demographic characteristics and media habits of male hairspray users, as well as attitudinal information about such product attributes as oiliness, stickiness, masculinity, and fragrance.

The findings were to be presented Monday afternoon, and a long series of problems and delays had forced Bob to come in on Saturday to finish the report. Complicating matters, Bob felt that his boss, Barry Michaels, expected the statistical analysis to be consistent with L&H's initial recommendations to Standard. Bob, Barry, and Marjorie Glass, from Standard's advertising agency, were to meet Monday morning to finalize L&H's presentation to Standard.

Back in September, Bob had recommended surveying 250 users of men's hairspray from each of 15 metropolitan areas. Charles Chastain from Standard's marketing department had argued that conclusions about local usage in each city would not be accurate unless each city's sample size was proportional to its population. That is, the sample sizes for larger cities

should be larger than for smaller cities. Furthermore, Charles feared that males in metropolitan areas differed from rural males on usage or other important characteristics. Bob finally convinced Charles that sample sizes proportional to population would mean only 5 to 10 interviews in some smaller cities—too few to draw statistically valid conclusions. Furthermore, expanding the survey to include rural users would have required committing more money to the project—money Standard didn't want to spend. Since Standard was a new account with big potential, a long-term relationship with them would be valuable. (Business at L&H had been slow this past year.) Feeling "under the gun," Bob met with Barry and Charles, who agreed to reduce the sample to 200 men in each of only 11 metropolitan areas.

In October, a Des Moines, Iowa, pretest revealed that the questionnaire's length was driving the cost per completed interview to about $18. Total expenses would be well over budget if that cost held for the 15 metro areas. If the survey costs exceeded $65,000 (counting the pilot study), precious little money would be left for the focus groups, advertising, and packaging pretesting in L&H's contract with Standard (see Table 11.1).

In early November, a new problem arose. After surveying eight metro areas, Bob discovered that his assistant, with whom he had a good long-term relationship, had accidentally deleted all questions on media habits from the questionnaire given to L&H's vendor for the phone interviews. When telling Barry and Charles of the missing questions problem, Bob omitted indicating the source of the problem. Barry and Charles became visibly angry at the vendor, but after much discussion, they decided there was too little time to hire a new vendor and resample the eight areas. Therefore, they agreed to reinsert the media questions for the remaining three cities and just finish the survey.

Bob's task now was to make the most of the data he had. Because responses from each of the three cities were reasonably similar, and each city came from a different region (East, West and Midwest), Bob felt confident that the three-city data were representative. Therefore, he decided to base the media plan on the large differences between his results and the national averages for adult men—making sports magazines and newspapers the primary vehicles for Standard's advertising (see Table 11.2).

Bob's confidence in the media plan based on sports magazines and newspapers was bolstered by a phone conversation with Marjorie Glass. Until a short time ago, her agency had handled the advertising for American Toiletries, so she had valuable information about this competitor's possible responses to Standard's new product. Marjorie liked Bob's recommendations, had no misgivings about using information about a former client, and agreed to support the media plan in Monday's meeting. Indeed, Bob thought, Marjorie had been a big help.

The Standard project had put a great deal of stress on Bob, who hated spending weekends away from his family—especially near Christmas! If the presentation went well and more business was forthcoming, Bob suspected he would be spending even more weekends here. But if the presentation went poorly or the data collection errors became an issue, then Standard might look elsewhere for market research, thus jeopardizing Bob's future with L&H. Either way, he felt apprehensive. He wondered how he should present his results and how much information he should share with the client. Should he reveal to Standard any or all of the problems L&H experienced in conducting the project? Or should he simply present his results and recommendation as a credible basis to proceed with Standard's media plan and not mention technical issues? The question really was about the level of understanding that his client would want about the basis of the recommendations. He also thought that his boss, Barry Michaels,

Table 11.1
Proposed Budget.

Type of Expense	Amount (US$)
Phone survey	58,000
Focus group study	8,000
Advertising pretesting	25,000
Package pretesting	14,000
Miscellaneous expenses	5,000
Proposed total expenses	**110,000**

Table 11.2
Comparison of Media Habits, Three-City Sample of Male Hairspray Users versus U.S. Adult Males.

Male Media-Use	Male Hairspray Users in Three Cities	National Male Hairspray Users
Magazines (at least one subscription)		
News	28%	19%
Entertainment	4	3
Sports	39	20
Other	9	6
Newspapers (at least one daily subscription)	35	14
Favourite radio format		
Pop/rock	51	48
Country	26	37
EZ listening	7	6
News/talk	5	4
Other	11	5
Hours watching television per week		
Total	17.5 hours	23.5 hours
Dramas	6.3	8.4
Comedies	7.8	7.3
News	1.1	3.9
Other	2.3	3.9

would be much more concerned about how well the proposals fit with L&H's initial recommendations and would certainly be upset if he lost the account. The choices weren't easy. Bob wished he could turn to somebody outside the organization to share his dilemma and seek a fresh, independent perspective.

Source: Excerpted from Boland, R. J., Jr., Singh, J., Salipanti, P., Aram, J. D., Fay, S. Y., & Kanawattanachai, P. (2001). Knowledge representations and knowledge transfer. *Academy of Management Journal, 44*, 393–417, Appendix B. Reprinted with permission.

1. Given the formal definition of the word problem presented in the chapter, what is the problem faced by Bob Smith? Is the problem well-structured or ill-structured?
2. What are some of the bounds or limits on rationality that affect attempts to solve the problem Bob faces? What would a sastisficing solution be?
3. Is Bob suffering from too little information or too much? Defend your answer.
4. How has Bob framed his problem? What would be an alternative frame?
5. Does the case contain any elements of groupthink or escalation of commitment? Please explain.
6. Discuss how confirmation bias and the anchoring effect (Exhibit 11.4) pertain to Bob's concern about Barry Michaels' interest that the marketing proposal fit the initial recommendation to the client.
7. Are their ethical issues in this case?
8. What should Bob do?